

Draft Environmental Assessment

City of Peabody Goldthwaite Brook Flood Mitigation Project

Peabody, Massachusetts

PDMC-PJ-01-MA-2008-002

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
amsl	above mean sea level
APE	Area of Potential Effects
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CO	carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
DFG	Department of Fish and Game
DNL	Day-Night Average Sound Level
DPS	Department of Public Services
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
M&E	Metcalf & Eddy
MassDEP	Massachusetts Department of Environmental Protection
MDFG	Massachusetts Division of Fisheries and Game
MEMA	Massachusetts Emergency Management Agency
MHC	Massachusetts Historical Commission
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHESP	Natural Heritage and Endangered Species Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O ₃	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead

Acronyms and Abbreviations

PDM	Pre-Disaster Mitigation
PGP	Programmatic General Permit
PM _{2.5}	particulate matter less than 2.5 microns
PM ₁₀	particulate matter less than 10 microns
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Office
URS	URS Group, Inc.
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
WPA	Wetlands Protection Act

1.0 INTRODUCTION

1.1 PROJECT AUTHORITY

The City of Peabody (Peabody) has experienced recurring flooding problems since the 1950s. Peabody has applied to the Federal Emergency Management Agency (FEMA) for assistance with a Pre-Disaster Mitigation (PDM) project under subapplication number PDMC-PJ-01-MA-2008-002. FEMA's PDM-Competitive program, under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funds for pre-disaster mitigation activities that reduce overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations.

In accordance with 44 Code of Federal Regulations (CFR) for FEMA, Subpart B, Agency Implementing Procedures, Part 10.9, this Environmental Assessment (EA) has been prepared pursuant to Section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ; 40 CFR Parts 1500-1508) (FEMA, 1996). The purpose of the EA is to analyze the potential environmental impacts of the proposed project, and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 PROJECT LOCATION

The proposed project spans approximately 1,950 linear feet and is located along the Goldthwaite Brook culvert in Peabody Square (downtown area of Peabody) and the North River channel in the municipalities of Peabody and Salem, MA. Peabody is a developed residential, commercial, and industrial area with a population of 51,734 located in northeastern Massachusetts (Appendix A, Figures 1 and 2). The proposed project begins at Oak Street and extends generally along Foster Street to the North River, downstream of Wallis Street.

1.3 PROJECT DESCRIPTION

The City's overall flood mitigation plan for Peabody Square is comprised of three distinct projects. The subject of this environmental assessment concerns the first project, also referred to as "Project 1" in the City's flood mitigation plan. While the City's ultimate objective is to have all three projects implemented, Project 1 has independent utility from Projects 2 and 3 and could be implemented without the other two. The independent utility of Project 1 was demonstrated by hydraulic and hydrologic analyses conducted by Metcalf & Eddy (M&E, 2008d) which show that Peabody Square flooding resulting from the 25-year, 24-hour storm is eliminated and flooding during the 50-year, 24-hour storm is reduced as a result of constructing Project 1 alone. The City recognizes that it must proceed through the state and federal regulatory permitting processes, including Massachusetts Environmental Policy Act (MEPA) review, to receive approval to construct Project 1 independently of Projects 2 and 3. The City is currently conducting additional analyses to address questions that arose during the MEPA review of the Environmental Notification Form (ENF) for Project 1.

The proposed project consists of installing two new identical 4-foot high by 10-foot wide stormwater culverts in the Goldthwaite Brook tributary (Appendix A, Figure 3). The new culverts would allow stormwater flow from the Goldthwaite Brook tributary to bypass its current connection with the existing main culvert and convey stormwater flow directly to the North

River. The main culvert currently conveys stormwater flow from both Goldthwaite and Proctor Brook tributaries; after construction of the new culverts, the existing main culvert would convey stormwater solely from the Proctor Brook tributary. The proposed project also includes the construction of a transition structure on top of the existing culverts to the downstream proposed new twin 4-foot high by 10-foot wide culverts; the original Foster Street culvert, including the open channel portion of the culvert, would also be cleaned.

The new culverts would begin at Oak Street and extend north along Foster Street to Lot 085-177. From Lot 085-177, the culverts would cross under Church Street, extend northwest along Church Street, and then extend northeast through a City-owned parking lot. The culverts would then cross under Lowell Street to the Peabody Square monument. From the monument, the culverts would extend east under Central Street through Lots 085-058, 085-059, and 085-060. The culverts would then cross under Wallis Street and end at an outlet to the North River.

During project construction, construction crews would inspect culverts before and during major precipitation events to ensure that no blockages in flow occur. Additionally, the City of Peabody Department of Public Services would conduct quarterly maintenance of the new culverts (i.e., cleaning of sediment and debris) as part of the routine maintenance program for Peabody's drainage system; if debris, sediment, or other potential reductions in the flow capacity of the culvert are discovered during inspections, crews would be dispatched to clean the culvert before any moderate to severe precipitation events.

2.0 PURPOSE AND NEED

The purpose of the proposed project is to eliminate flooding at Peabody Square (Central, Main, and Lowell Streets), Oak Street, Foster Street, and adjacent neighborhoods.

Peabody has experienced recurring flooding problems since the 1950s, largely attributed to the deteriorating condition of the watercourses in Peabody Square (which were converted to culverts and channels over the past 150 years to promote drainage) and business development alongside streams. Peabody's aging drainage system is now, and has been for some time, significantly undersized and does not have the capacity to handle flows associated with severe weather events. Therefore, Peabody needs to improve the drainage system to eliminate flooding at Peabody Square.

The North River is the main drainage conduit through Peabody. The watershed of the North River encompasses approximately 11.5 square miles and includes the tributaries of Proctor, Goldthwaite, Tapley, Strongwater, and Lawrence Brooks. Approximately 80 percent of the watershed area is conveyed to the North River through two culverts—the Goldthwaite Brook and Proctor Brook culverts. The two culverts ultimately converge into one main culvert that extends approximately 1,400 feet before discharging into the North River. The main culvert is undersized and not capable of conveying the combined flow from the two culverts effectively during large storms, causing flooding at Peabody Square.

Five major flooding events have occurred in Peabody Square and adjacent communities since 1996 (October 1996, June 1998, March 2001, April 2004, and May 2006), resulting in significant safety, health, environmental, and economic impacts. Three of the five major flooding events (October 1996, April 2004, and May 2006) resulted in Federal Disaster declarations. Flooding in Peabody Square has also resulted in regional economic impacts. The transportation of goods and services has been obstructed for several days as a result of major flood events in Peabody Square, due to the closing of flooded transportation routes that connect to U.S. 95, MA 128 and 114, and commercial rail service. In addition, floodwaters in Peabody Square isolate the main fire and police station, resulting in delayed public safety response throughout Peabody. Mitigating flooding in Peabody Square would prevent multiple adverse impacts to Peabody and adjacent neighborhoods including:

- Public safety and health risks
- Environmental damage
- Property and structure damage
- Regional and local economic loss
- Emergency facility isolation and delayed emergency response
- Major transportation route closures

3.0 ALTERNATIVES

This section describes the alternatives that were considered in addressing the purpose and need stated in Section 2 above. Two alternatives were evaluated: the No Action Alternative, and the Proposed Action Alternative, which is the construction of two new identical stormwater culverts intended to reduce flooding in Peabody Square.

3.1 ALTERNATIVES CONSIDERED AND DISMISSED

Peabody reviewed flood data and reports dating back to 1954, including previously identified mitigation alternatives, to identify a practicable and cost-effective project to alleviate flooding in Peabody Square without causing additional downstream flooding in the City of Salem, MA. Peabody evaluated both upstream and downstream areas of Peabody Square to identify possible alternatives.

In 1979, construction of a tidal gate and pump station at Beverly Harbor on the North River (downstream of Peabody Square) was evaluated as a possible alternative. Upon recent analysis and evaluation, Peabody determined that this alternative would provide only minimal flood mitigation for Peabody Square, which would not meet the purpose and need for the project, and was therefore dismissed.

During the Preliminary Design Report and subsequently, the City evaluated various options to store excess runoff upstream of Peabody Square during severe weather events. The City's evaluations to date have shown that some storage can be achieved by making modifications to Cedar Pond, Upper and Lower Flume Pond, Sydney Pond, Centennial Park detention basins, and Crowninshield Pond; however, these reductions are not sufficient to eliminate the need for Project 1. The City is currently evaluating the efficacy of these upstream storage solutions as well as Low Impact Development (LID) techniques such as Impervious Cover Reduction (ICR) to lower flows downstream of Peabody Square in conjunction with the implementation of Project 1. Other upstream storage options investigated would potentially aggravate existing flooding upstream and are therefore infeasible.

The City currently plans to implement the following measures in spring 2010, which will reduce localize flooding in their immediate vicinity but will not sufficiently lowers flows to eliminate the need for Project 1:

- Construction of Centennial Park detention basin improvements
- Modification of the Cedar Pond and Upper Flume Pond outlets on Eastman Gelatine property
- Installation of bio-retention basins, water quality swales, and pervious pavement at Welch School
- Modification of detention basin to expand capacity at Higgins School, as well as creation of vegetated swales

3.2 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, no new culverts would be constructed in Peabody. Approximately 80 percent of the watershed area in Peabody would continue to be ultimately conveyed to one main culvert that discharges to the North River. Based on historical events, the

main culvert would continue to ineffectively convey floodwater to the North River, and therefore flooding in Peabody Square and adjacent neighborhoods would continue. The public would remain vulnerable to safety and health hazards resulting from repeated flooding. Peabody would continue to be at risk of significant local and regional economic loss due to property, structure, and environmental damage and transportation route closures. Emergency facilities would remain vulnerable to isolation, which would render it difficult or impossible for emergency responders to provide emergency services during and after severe rain events.

3.3 ALTERNATIVE 2: CONSTRUCTION OF CULVERTS (PROPOSED ACTION)

Under the Proposed Action Alternative, Peabody proposes to construct two new identical 4-foot high by 10-foot wide stormwater culverts in the Goldthwaite Brook tributary. The new culverts would begin at Oak Street and extend north along Foster Street to Lot 085-177. From Lot 085-177, the culverts would cross under Church Street, extend northwest along Church Street, and then extend northeast through a City-owned parking lot. The culverts would then cross under Lowell Street to the Peabody Square monument. From the monument, the culverts would extend east under Central Street through Lots 085-058, 085-059, and 085-060. The culverts would then cross under Wallis Street and end at an outlet to the North River (Figures 1 and 2). The proposed project also includes the construction of a transition structure on top of the existing culverts to the downstream proposed new twin 4-foot high by 10-foot wide culverts as well as cleaning the original Foster Street culvert, including the open channel portion of the culvert.

The new culverts would allow stormwater flow from the Goldthwaite Brook tributary to bypass its current connection with the existing main culvert, which also conveys stormwater flow from the Proctor Brook tributary to the North River. The new culverts would convey stormwater flow from the Goldthwaite tributary directly to the North River, allowing for more efficient drainage. The existing main culvert would remain intact and would convey stormwater flow solely from the Proctor Brook tributary. Perennial flow would be diverted from approximately 400 feet of open channel in Goldthwaite Brook into the new Goldthwaite Brook culvert resulting in reduced flows in that portion of the channel. Stormwater from local drainage would still flow into and through this portion of Goldthwaite Brook.

The site work would require excavation in the project area at depths ranging from 6 to 9 feet below ground surface. Areas above the new culverts would be paved with a minimum of 4 inches of pavement in two courses. Paved areas above the culverts would comply with all City requirements for pavement in city roads. In unpaved locations of the project area, a minimum of 6 inches of loam and seed, underlain with bank-run gravel are proposed. Access manholes to allow cleaning and flushing of sediments would be provided at 200-foot intervals for each culvert. The proposed project would take approximately 35 months to complete. Weather monitoring would occur 24 hours per day, 7 days per week, to alert crews for the need to inspect culverts before and during major precipitation events to ensure that no blockages in flow occur. Additionally, the City of Peabody Department of Public Services would conduct quarterly maintenance of the new culverts (i.e., cleaning of sediment and debris) as part of the routine maintenance program for Peabody's drainage system; if debris, sediment, or other potential reductions in the flow capacity of the culvert are discovered during inspections, crews would be dispatched to clean the culvert before any moderate to severe precipitation events.

4.0 AFFECTED ENVIRONMENT AND IMPACTS

This section describes the potential impacts of the Proposed Action Alternative and the No Action Alternative. Where potential impacts exist, conditions or mitigation measures to offset these impacts are described. A summary table is provided in Section 4.11.

4.1 GEOLOGY AND SOILS

The majority of the project area is underlain by quaternary age glaciofluvial deposits (glacial material deposited by flowing water). High level quaternary-age marine deposits occur within the eastern area of the project where the proposed culvert route runs mostly east-west (Oldale, 1964). Elevations in the project area range from 30 to 20 feet above mean sea level (amsl). While the general region of Peabody includes hilly topography, the topography of the project area is relatively flat (less than 3 percent slope).

According to the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) online Web Soil Survey, the proposed project site is mapped as “Urban land,” which is defined as “areas so altered or obstructed by urban works or structures that identification of soils is not feasible.” The urban land map unit is made up of 80 percent urban land, and 20 percent minor components of the following soils: Udorthents, Hollis, Whitman, Whately Variant, Swansea, Freetown, Maybid, and Scarboro (USDA/NRCS 2008). Because the soils in this area are mapped as urban land, no soil characteristics such as texture, infiltration, and runoff are described. Due to the amount of imperviousness, runoff in the project area is rapid and flows into a stormwater drainage system.

The Farmland Protection Policy Act (FPPA) states that Federal agencies must “minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses.” Because the project area is within a city limit and mapped as urban land, no prime or unique farmland exists.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to geology or soils.

Proposed Action Alternative – Under the Proposed Action Alternative, construction activities would not be deep enough to affect underlying geologic resources. Surface soils on the proposed project site would be disturbed to install the new culverts, and therefore there is potential for erosion and discharge of sediment-laden runoff from the project site. Peabody would be required to submit a Stormwater Pollution Prevention Plan (SWPPP) to identify appropriate Best Management Practices (BMPs) to minimize erosion and prevent the off-site transport of sediment. Excavated soil and waste materials, including contaminated soils, would be managed and disposed of in accordance with applicable local, state, and Federal regulations.

On September 18, 2008, an agency coordination letter was sent to the NRCS, Westford Service Center requesting project review (see Appendix B). No response has been received to date.

4.2 WATER RESOURCES

4.2.1 Surface Water

The surface water resources in the project area have been significantly altered by urban development, including channelization and the installation of culverts, both on open channels and in the form of extended subterranean culverts that form man-made underground streams. The North River, which begins approximately 100 feet east of Wallis Street (shown on Figure 2) and discharges into Beverly Harbor approximately 1.5 miles to the east of the project area, is the main drainage conduit for Peabody.

The North River watershed encompasses approximately 11.5 square miles and includes the following tributaries: Proctor, Goldthwaite, Tapley, Strongwater, and Lawrence Brooks. Approximately 80 percent of the watershed is conveyed to the North River via the Goldthwaite Brook and the Proctor Brook culverts. These two culverts merge into a main culvert at a subterranean intersection near the Peabody District Courthouse between Lowell Street and Railroad Avenue. The main culvert extends approximately 1,400 feet to the discharge at the North River near Wallis Street. A site visit by FEMA staff on August 25, 2008, verified these findings.

No Action Alternative – Under the No Action Alternative, no construction would occur. Peabody Square would continue to flood during storm events, conveying surface contaminants, sediments, and debris into downstream surface waters.

Proposed Action Alternative – Under the Proposed Action Alternative, temporary short-term impacts to surface water may be anticipated during the construction period due to soil erosion and the transport of sediment in stormwater runoff. Increased sedimentation in surface waters may also result as consequence of cleaning the existing Foster Street culvert. There is also a potential for contaminated groundwater to be encountered during site excavation for the proposed project. Contaminated groundwater may discharge into surface water as a result of runoff during or subsequent to a rainfall event. The subapplicant would submit a SWPPP and obtain a National Pollutant Discharge Elimination System (NPDES) permit prior to construction. To reduce impacts to surface water, the subapplicant would implement appropriate erosion and sediment control BMPs. The subapplicant would also submit a Notice of Intent (NOI) with information on the site, proposed discharge, contaminants believed to be present or absent, proposed treatment system, and the receiving water to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for review. A NPDES general remediation permit may be required for discharge of contaminated groundwater as a result of excavations.

Implementation of the project would improve the hydraulic capacity of Goldthwaite Brook in the vicinity of Peabody Square and reduce or eliminate flooding at Peabody Square.

On September 18, 2008, an agency coordination letter was sent to MassDEP requesting project review (see Appendix B). No response has been received to date.

4.2.2 Floodplains

Executive Order (EO) 11988 (Floodplain Management) requires Federal agencies to avoid direct or indirect support of development within the 100-year floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps (FIRMs) to identify the regulatory 100-year floodplain for the National Flood Insurance Program (NFIP). Consistent with EO 11988, a FIRM was examined during the preparation of this EA. The entire proposed project area is located in Flood Zone A14, which is within the 100-year floodplain (Community Panel Number: 250099 0010 B) (FEMA, 1980).

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to the floodplain.

Proposed Action Alternative – Under the Proposed Action Alternative, beneficial impacts would occur to the floodplain due to the reduction of flooding events in the Peabody Square area. The flooding experienced in Peabody Square is anticipated to be alleviated for storms up to the 50-year 24-hour storm as a result of the proposed project (M&E, 2008b, c). Adverse impacts on structures, infrastructure, and public safety from flooding would be significantly reduced. Because the project includes modifications to a floodplain, the 8-Step Process to identify, minimize, and mitigate floodplain impacts has been completed (see Appendix C).

4.2.3 Waters of the United States Including Wetlands and Coastal Zones

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or filled material into waters of the United States (WOUS), including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). Additionally, EO 11990 (Protection of Wetlands) requires Federal agencies to avoid, to the extent possible, adverse impacts to wetlands.

FEMA staff conducted a site visit on August 25, 2008. The area surrounding the project is highly urbanized, contains very little vegetation or wildlife, and is characterized primarily by paved areas such as streets and parking lots. No wetlands were observed on the proposed project site during the site visit. The National Wetlands Inventory (NWI) map also shows no wetlands occurring within the proposed project site (NWI, 2008).

The Coastal Zone Management Act (CZMA) enables coastal States, including Massachusetts, to designate State coastal zone boundaries and develop coastal management programs to improve protection of sensitive shoreline resources and guide sustainable use of coastal areas. According to the National Oceanic and Atmospheric Administration (NOAA) and the Massachusetts Office of Coastal Zone Management, the project area is not located within Massachusetts' coastal zone (NOAA, 2004; Massachusetts Office of Coastal Zone Management, 2008).

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to WOUS, including wetlands and coastal zones.

Proposed Action Alternative – Under the Proposed Action Alternative, no impacts to wetlands or resources within the coastal zone would occur. There would be some impacts to WOUS from the Proposed Action Alternative. Approximately 400 feet of open channel along the existing culvert would experience loss of flow as a result of the diversion of flow away from Goldthwaite Brook and into the proposed new culverts. This loss of natural flow is anticipated to permanently impact the inland bank along both sides of the 400-foot-long drainage channel as well as approximately 1,200 square feet of subaqueous land. However, it should be noted that the inland

bank and subaqueous land in this section of drainage channel is comprised of an artificial impervious material; thus, these resource areas currently function as flood control and stormwater detention areas and provide minimal benefit to the remaining interests of the Massachusetts Wetlands Protection Act (WPA), including wildlife habitat, water supply, pollution prevention, and fisheries protection (Code of Massachusetts Regulations 10.56(1) and CMR 10.54(1)) (M&E, 2008c).

Additional constraints to the Goldthwaite Brook may result from the construction of a transition structure on top of the existing culverts to the downstream proposed new twin 4-foot high by 10-foot wide culverts where the proposed project begins. At the point where the new twin culverts carrying Goldthwaite Brook meet the North River, approximately 30 linear feet of inland bank on the south side of North River is anticipated to be impacted to create the discharge point of the brook into the river. The subapplicant will be required to submit an application to the USACE for a Programmatic General Permit (PGP) Category II Review and obtain a written authorization prior to construction.

A consultation letter, dated September 18, 2008, was submitted to the USACE New England District requesting agency review and comments regarding the proposed project. A response was received from the USACE via electronic mail on September 30, 2008, indicating that the USACE did not have information for the area affected by the proposed project (see Appendix B).

4.3 TRANSPORTATION

The proposed project alignment would extend approximately 410 feet north along Foster Street starting at Oak Street, then turn west and north behind the building on Lot 085-177, cross Church Street, extend through the city-owned parking lot, and cross Lowell Street to the Peabody Square monument. From the monument to the North River the project follows an alignment south of the railroad tracks until ending at Wallis Street.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to transportation.

Proposed Action Alternative – Under the Proposed Action Alternative, installing the culverts for Goldthwaite Brook would result in temporary traffic impacts due to construction within a portion of Foster, Franklin, Church, Central, and Wallis Streets. Installation of the culverts would also result in temporary loss of on-street parking spaces along Foster Street and in two parking lots adjacent to Foster Street.

The project would result in temporary disruptions to railroad service. However, use of the affected railroad is limited to infrequent freight use and impacts are anticipated to be minimal. The City of Peabody Department of Public Services (DPS) will review all coordination documents before they are sent to outside agencies or property owners. After DPS approval, the consultant will coordinate with affected property owners, the Massachusetts Bay Transportation Authority (MBTA), and Pan-Am Railways as project planning continues.

A consultation letter, dated September 18, 2008, was submitted to the Massachusetts Highway Department, District 4, requesting agency review and comments regarding the proposed project (see Appendix B). To date, no response has been received.

4.4 ENVIRONMENTAL JUSTICE

EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) mandates that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

The City of Peabody has a population of 48,129 individuals. According to the 2000 Census, in 1999 the median household income reported in the City of Peabody was \$54,829, with 5.3 percent of individuals living below the poverty level. The median household income reported in all of Essex County was \$51,576, with 8.9 percent of individuals living below the poverty level. The median household income in the State of Massachusetts was \$50,502, with 9.3 percent of individuals living below the poverty level (U.S. Census Bureau, 2000).

Minorities represented 6.1 percent, 13.6 percent, and 15.5 percent, respectively, of the City of Peabody, Essex County, and the State of Massachusetts populations. Table 1 shows the specific racial composition of the City of Peabody, Essex County, and the State of Massachusetts populations.

Table 1: Racial Composition of Peabody, Massachusetts

Ethnicity	City of Peabody	Essex County	State of Massachusetts
White	93.9 %	86.4 %	84.5 %
Black or African American	1.0 %	2.6 %	5.4 %
American Indian or Native Alaskan	0.1 %	0.2 %	0.2 %
Asian	1.4%	2.3 %	3.8 %
Native Hawaiian or Other Pacific Islander	0.0 %	0.0 %	0. %
Other	1.8 %	6.2 %	3.7 %
Source: U.S. Census Bureau 2000			

In the City of Peabody, 18.8 percent of citizens over the age of 5 are living with a disability. Comparatively, 18.8 percent of people in Essex County and 18.5 percent of people in the State of Massachusetts are living with a disability.

No Action Alternative – Under the No Action Alternative, the existing risk to all citizens in areas adjacent to Peabody Square would remain the same during flooding events. There would be no disproportionately high or adverse impact on minority or low-income portions of the population; all populations would continue to be at risk.

Proposed Action Alternative – The Proposed Action Alternative would provide flood mitigation that would be beneficial to all members of the community. There would be no anticipated disproportionately high or adverse impact on minority or low-income portions of the population; all populations would benefit from the flood mitigation provided by the proposed project.

4.5 AIR QUALITY

The Clean Air Act (CAA) requires that States adopt ambient air quality standards. The standards were established in order to protect the public from potentially harmful amounts of pollutants. Under the CAA, the EPA establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of “sensitive populations, such as people with asthma, children, and older adults.” Secondary air quality standards protect public welfare by promoting ecosystems health, and preventing decreased visibility and damage to crops and buildings. The EPA has set national ambient air quality standards (NAAQS) for the following six criteria pollutants: ozone (O₃), particulate matter (PM_{2.5}, PM₁₀), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), and lead (Pb). According to the EPA, Essex County, including the City of Peabody, is in non-attainment for O₃ (EPA, 2008).

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to air quality.

Proposed Action Alternative – Under the Proposed Action Alternative, no long-term impacts to air quality are anticipated. Upon completion of construction, the new culverts would not emit any air pollutants. Short-term impacts to air quality may occur during construction of the new culverts. To reduce temporary impacts to air quality, construction contractors would be required to water down construction areas when necessary, keeping fugitive dust to a minimum. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO₂, O₃, PM₁₀, and non-criteria pollutants such as volatile organic compounds (VOCs). To reduce the emission of air pollutants, fuel-burning equipment running times would need to be kept to a minimum and engines would be properly maintained.

4.6 NOISE

Noise is generally defined as unwanted sound. Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by Federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. EPA guidelines, and those of many other Federal agencies, state that outdoor sound levels in excess of 55 dB DNL are “normally unacceptable” for noise-sensitive land uses such as residences, schools, or hospitals. The proposed project site is located in a mainly residential area.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to noise levels.

Proposed Action Alternative – Under the Proposed Action Alternative, temporary short-term increases in noise levels are anticipated during the construction period. To reduce noise levels during that period, construction activities would take place during normal business hours. Equipment and machinery installed and used at the proposed project site would meet all local, State, and Federal noise regulations.

4.7 BIOLOGICAL RESOURCES

Under Section 7 of the Federal Endangered Species Act (ESA), as amended, Federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), are required to evaluate the effects of their actions on federally protected species of fish, wildlife, and plants, and their habitats, and to take steps to conserve and protect these species. Federally protected species are defined as plants or animals that are listed as threatened or endangered by the USFWS.

The project area is highly urbanized, contains very little vegetation (scattered landscaped trees) or wildlife, and is characterized primarily by paved areas such as streets and parking lots (USFWS, 2008; Massachusetts Department of Fish and Game, 2006). A site visit conducted on August 25, 2008, confirmed that the proposed area does not contain habitat for any federally protected species.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to biological resources, including federally protected species.

Proposed Action Alternative – Under the Proposed Action Alternative, no impacts to threatened or endangered species are anticipated because there is no suitable or designated critical habitat for federally protected species in the project area. Some trees would be removed under the Proposed Action Alternative. Upon completion of the project, replacement trees would be planted.

According to letters dated July 2, 2007, from the USFWS, and July 9, 2007, from NMFS, no federally listed or proposed threatened or endangered species or critical habitat exist within the project area or in waters affected by the proposed project (see Appendix B).

Consultation letters dated September 18, 2008, were submitted to the USFWS, NMFS, and the Massachusetts Division of Fisheries and Game (MDFG) requesting agency review and comments regarding the proposed project (see Appendix B). Responses were received from all of these agencies (see Appendix B) and are summarized below:

- A response was received from the USFWS dated October 22, 2008, indicating that no federally listed threatened or endangered species or critical habitat is known to occur in the project area. Therefore, no further coordination under the ESA is necessary for a period of one year from the date of the letter.
- A response dated October 1, 2008, was received from NMFS indicating that no threatened or endangered species under their jurisdiction occur in the vicinity of the proposed project and that no further coordination under the ESA is necessary.
- A response was received from the MDFG via electronic mail on September 25, 2008, indicating that the site is not mapped as Priority or Estimated Habitat for state-listed species and that the Natural Heritage and Endangered Species Program (NHESP) database does not contain any state-listed species records in the immediate vicinity of this project. Therefore, the project is not required to be reviewed in compliance with the Massachusetts Endangered Species Act Regulations (321 CMR 10.18).

4.8 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and as implemented by 36 CFR Part 800, requires Federal agencies to consider the effects of their actions on historic properties and to provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment prior to project implementation. Historic properties are defined as those buildings, structures, sites (including archaeological sites), objects, and districts that are listed in or eligible for listing in the National Register of Historic Places (NRHP). For the purposes of NEPA documentation, effects to cultural resources are primarily evidenced through Section 106 of the NHPA.

No Action Alternative – Under the No Action Alternative, no impacts to cultural resources would occur. Therefore, the alternative would have no adverse effect on historic properties.

Proposed Action Alternative – Under the Proposed Action Alternative, there is a potential for adverse effects to historic properties.

Identification of Historic Properties. In 2008, a URS Archaeologist and Architectural Historian, both qualified under the Secretary of the Interior’s Professional Qualification Standards (36 CFR Part 61) in their respective disciplines, conducted a cultural resources study, including an above-ground resources survey and an archaeological assessment, of the project area to identify historic properties in the Area of Potential Effects (APE). The APE is the geographic area within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. As shown in Exhibit 1, three design options for the proposed action—Alternatives A, B, and C—were accounted for in the cultural resources study, with Alternative B defined as the Proposed Action Alternative.

For above-ground resources, the APE encompasses the alignments of all three alternatives and an approximate 10-foot buffer from the 30-foot wide construction corridor where appropriate. For archaeology, the APE is the 30-foot-wide construction corridor for all three alternatives. These APEs were established by FEMA in consultation with the Massachusetts Historical Commission (MHC), which is designated as the Massachusetts State Historic Preservation Office (SHPO), as well as the Office of the State Archaeologist (OSA).

In October 2008, a survey of all aboveground resources appearing to be 50 years of age or older and one building dating to 1963 within the APE was conducted. These resources, shown in Table 2 below, were evaluated for eligibility for listing in the NRHP in accordance with the NRHP Criteria. FEMA submitted the results to the MHC and received concurrence on November 12, 2008.

Table 2: NRHP Eligibility Determinations

Name & Address	Construction Date	Located in Historic District?	Determination of Eligibility
Metro Bowl 63 Foster Street	1930s (later additions/modifications)	No	Not Eligible
Eastern Bank 37 Foster Street	1963	No	Not Eligible
Peabody Civic Center Historic District	Multiple	Yes (Peabody Civic Center Historic District)	Listed, NRHP Historic District (Listed 11/25/1980)
French Building 10-14 Lowell Street	1850s, 1905 (later modifications)	No	Not Eligible
Soldiers and Sailors Civil War Monument Peabody Square	1881	Yes, Peabody Civic Center Historic District	Listed (Contributing), NRHP Historic District (Listed 11/25/1980)
Century Bank and Trust Company 2 Central Square	1825 (remodeled in 1962)	No	Not Eligible
Allen Block 14-28 Peabody Square	1830, 1857, 1871	No	Eligible (Individually)
House 2 Mill Street	1930s	No	Not Eligible
Pickled Skin Store House, John F. Kaiser Co. Behind Mill Street along railroad tracks	1930s	No	Not Eligible
Motel/Apartment Building 4 Mill Street	1950	No	Not Eligible
United States Post Office Wallis Street	1957	No	Not Eligible

For archaeological resources, the MHC recommended that an archaeological reconnaissance survey and a more detailed assessment of the potential for presence of significant historic and prehistoric deposits in the APE be conducted for the project. An archaeological permit (#3104) was obtained from the OSA for this study, and background research was conducted in March and April of 2009.

In June 2009, a Phase IA Archaeological Reconnaissance report was submitted to document those research efforts. The report identified three sections within the APE where there is the potential for significant archaeological sites to be found. A program of machine-assisted test excavations, targeted in the selected areas identified by detailed historic map analysis, was recommended to search for and evaluate possible archaeological deposits. The MHC concurred with the recommendations that field investigations would be required. The scope of any future investigations must be finalized in consultation with the MHC under the archaeological permitting process established by 950 Code of Massachusetts Regulations 70.00.

Determination of Effects. For above-ground resources, FEMA applied the Criteria of Adverse Effect in accordance with 36 CFR Part 800.5 and concluded that the proposed project has the potential to adversely affect the following historic properties: Surveyed Property #3, Peabody Civic Center Historic District (PEA.A) (NRHP-listed Historic District); Surveyed Property #5,

Soldiers and Sailors Civil War Monument (PEA.901), (NRHP-listed as a contributing object within the Peabody Civic Center Historic District); and Surveyed Property #7, Allen Block, 14-28 Peabody Square (NRHP-eligible).

As proposed, Alternative A and Alternative B (Proposed Action Alternative) would require the dismantling, temporary relocation, and reconstruction of the Soldiers and Sailors Civil War Monument. These activities have the potential to alter the NRHP integrity (materials and workmanship) of the monument and, consequently, the Peabody Civic Center Historic District of which it is a part. Alternative C has the potential to result in adverse effects on the Allen Block, the Soldiers and Sailors Civil War Monument, and, consequently, the Peabody Civic Center Historic District, caused by associated construction activities, such as vibration.

For archaeological resources, FEMA has determined that the undertaking has the potential to adversely affect historic properties, if present. However, because design plans are not available (including staging, temporary construction, or material storage areas) and the identification of archaeological resources is not complete, the effects of the undertaking on archaeological resources cannot be fully and specifically determined at this stage in the project planning.

Resolution of Effects. In order to meet agency obligations under 36 CFR Part 800 and still permit the obligation of funds for the project to the sub-applicant, FEMA developed a Programmatic Agreement (PA) in accordance with 36 CFR Part 800.14. Executed in October 2009, this legally-binding agreement document among FEMA, MEMA, MHC, and the City of Peabody allows for the deferral of the identification and evaluation of archaeological resources and assessment of effects of the undertaking on archaeological resources until an alternative is selected and design plans are more fully developed. Should adverse effects to historic properties be identified at a later date, and these adverse effects cannot be avoided, the PA stipulates that these adverse effects will be resolved in accordance with Section 106 of the NHPA.

4.9 HAZARDOUS MATERIALS

Hazardous substances are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Hazardous substances are primarily generated by industry, hospitals, research facilities, and the government. Improper management and disposal of hazardous substances can lead to pollution of groundwater or other drinking water supplies, and the contamination of surface water and soil. The primary Federal regulations for the management and disposal of hazardous substances are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

The proposed project area is located in an area known for its historic leather tanning industries. Sites with a history of leather tanning are often found to have soil and groundwater contaminated with heavy oils, VOCs (e.g., toluene and xylenes), heavy metals (chromium, lead, and arsenic), sulfides, and formaldehydes. In addition, sites with a history of leather tanning often have pieces of leather and old hide piles buried throughout the site.

Peabody contacted Environmental Data Resources, Inc. to conduct a State and Federal database search, and obtain and review historical information such as Sanborn Fire Insurance Maps, U.S. Geological Survey (USGS) plans, and other available background information (EDR, 2007). In 2007, Peabody conducted two State file reviews with the MassDEP to develop a detailed

assessment of sites located within the proposed project area. In addition, Peabody interviewed site owners and occupants of buildings located within the proposed project area. A Phase I Environmental Site Assessment of the proposed project area was also completed in 2008 by M&E under contract to Peabody (M&E, 2008a). The Phase I Environmental Site Assessment did not include a search of title records, valuation reduction for environmental issues developed, or interviews with owners and/or occupants of the abutting properties; however, City employees and historians were interviewed. Several sites within the proposed project area including historic and current tanning sites, dry cleaning sites, dye storage and manufacturing sites, gas stations, auto body repair shops, machine repair shops, leaking storage tank sites, and a drum recycling site, revealed evidence of having Recognized Environmental Conditions (RECs). Soils within the proposed project area are expected to have chemical characteristics similar to urban fill (debris, coal, and coal ash). The Phase I Environmental Site Assessment concluded that there is potential for residual amounts of hazardous materials to exist near the sites that have RECs or near sites that currently store and/or use hazardous materials, and further recommended that a Phase II Environmental Site Assessment be conducted to determine the extent and impact of these conditions.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts from hazardous materials or waste.

Proposed Action Alternative – Under the Proposed Action Alternative, excavation would take place within the project area at depths ranging from 6 to 9 feet below ground surface. No specific conclusions can be drawn regarding hazardous materials and waste that could be encountered as excavation is conducted during the construction phase of the proposed project. However, impacts from excavating soils that may have chemical characteristics similar to urban fill, residual amounts of hazardous materials, and/or contaminants related to historic leather tanning operations are anticipated. Peabody may be required to obtain a soil management plan for any construction activities that may result in handling soil and groundwater in order to determine the appropriate method of disposal for soil and groundwater impacted with hazardous materials. In addition, Peabody may be required to obtain a general remediation permit if soil and groundwater handled during construction requires treatment before discharge. Any hazardous materials or waste discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, State, and Federal regulations.

Once the Phase II Environmental Site Assessment is complete, the subapplicant will submit a Notice of Intent (NOI) with information on the site, proposed discharge, contaminants believed to be present or absent, proposed treatment system, and the receiving water to the EPA and MassDEP for review. A NPDES general remediation permit may be required for discharge of contaminated groundwater as a result of excavations.

4.10 SAFETY

Safety and security issues considered in this EA include the health and safety of the area residents and the public-at-large, and the protection of personnel involved in activities related to the proposed construction of the new culverts.

Executive Order 13045, Protection of Children, requires Federal agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no direct impacts to the safety of the population. Approximately 80 percent of the watershed area in Peabody will continue to be conveyed to one main culvert that will contribute to flooding in Peabody Square and adjacent neighborhoods after major storm events. When flooding occurs, the general public (including children) in Peabody will continue to be vulnerable to resulting safety and health hazards, including delays in public safety response that result from the isolation of the main fire and police station in Peabody after flooding events.

Proposed Action Alternative – Under the Proposed Action Alternative, positive impacts to safety are anticipated. The new culverts would alleviate flooding after major storm events and the general public would no longer be vulnerable to safety and health hazards resulting from repeated flooding. In addition, the general public would no longer be vulnerable to delayed public safety response resulting from flooding and isolation of the main fire and police station in Peabody.

Construction activities may present safety risks to those performing the activities. To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in the Occupational Safety and Health Administration (OSHA) regulations. The appropriate signage and barriers would be in place prior to construction activities to alert pedestrians and motorists of project activities. No disproportionate health and safety risks to children are anticipated.

4.11 SUMMARY

The following table summarizes the potential impacts of the Proposed Action Alternative and conditions or mitigation measures to offset those impacts.

Affected Environment and Impacts

Affected Environment	Impacts	Mitigation
Geology and Soils	No impacts to underlying geology are anticipated. Soils on the project site would be disturbed during construction.	<p>A SWPPP must be obtained prior to construction.</p> <p>Implementation of appropriate BMPs would be required at the construction location, including the installation of silt fences and the revegetation of soils.</p> <p>Peabody may be required to obtain a soil management plan and a general remediation permit for any construction activities that may result in handling of contaminated soil and/or groundwater.</p> <p>Excavated soil and waste materials would be managed and disposed of in accordance with applicable local, State, and Federal regulations. If contaminated materials are discovered during the construction activities, the work would cease until the appropriate procedures and permits can be implemented.</p>
Surface Water	<p>Temporary, short-term impacts to Goldthwaite Brook may be anticipated during the construction period due to soil erosion.</p> <p>Excavation activities may expose or otherwise affect subsurface hazardous materials or waste, such as urban fill, residual amounts of hazardous materials, and/or contaminants related to historic leather tanning operations in the groundwater.</p>	A SWPPP and a NPDES permit must be obtained prior to construction. Appropriate BMPs, such as installing silt fences and revegetating bare soils, would minimize runoff.
Floodplains	The proposed project site is located within the 100-year floodplain. Beneficial impacts to the floodplain are anticipated due to the reduction of flooding events in the Peabody Square area.	None

Affected Environment and Impacts

Affected Environment	Impacts	Mitigation
Waters of the U.S., including Wetlands and Coastal Zones	<p>No impacts to wetlands and coastal zones are anticipated.</p> <p>Impacts to WOUS would include loss of natural flow along approximately 400 feet of Goldthwaite Brook. This loss of flow is anticipated to permanently impact the inland bank along both sides of the 400-foot-long drainage channel as well as approximately 1,200 square feet of subaqueous land. At the point where the new twin culverts carrying Goldthwaite Brook meet the North River, approximately 30 linear feet of inland bank on the south side of North River is anticipated to be impacted to create the discharge point of the brook into the river.</p>	A section 404 Programmatic General Permit (PGP) screened as a Category II Project from the U.S. Army Corps of Engineers may be required to mitigate potential impacts to Goldthwaite Brook.
Transportation	Short-term, minor, temporary increases in the volume of construction traffic on roads in the immediate vicinity of the project site are anticipated.	None
Environmental Justice	All populations would benefit from the Proposed Action.	None
Air Quality	Short-term impacts to air quality are anticipated during the construction period.	Construction contractors would be required to water down construction areas when necessary, running times of fuel-burning equipment would be kept to a minimum, and engines would be properly maintained.
Noise	Short-term impacts to noise levels are anticipated at the proposed project site during the construction period.	Construction would take place during normal business hours and equipment installed and used will meet all local, State, and Federal noise regulations.
Biological Resources/ Threatened and Endangered Species	No impacts to threatened or endangered species are anticipated. Some trees would be removed during project construction.	Replacement trees would be planted when construction is complete.

Affected Environment and Impacts

Affected Environment	Impacts	Mitigation
Cultural Resources	The project has the potential to affect historic properties, both above-ground and archaeological. A Section 106 Programmatic Agreement (PA) has been executed between FEMA and the SHPO to address and resolve any adverse effects, should they be encountered.	Any mitigation requirements will be developed according to the Section 106 Programmatic Agreement executed between FEMA and the SHPO.
Hazardous Materials	Impacts from hazardous materials or waste are not anticipated; however, excavation activities may expose or otherwise affect subsurface hazardous materials or waste, such as urban fill and residual amounts of hazardous materials, including VOCs and/or contaminants related to historic leather tanning operations.	Any hazardous/contaminated materials or waste discovered, generated, or used during construction would be disposed of and handled in accordance with applicable local, State, and Federal regulations. If hazardous/contaminated materials are discovered during the construction activities, the work will cease until the appropriate procedures and/or permits can be implemented. Consultation with the EPA and MassDEP will determine allowable thresholds for hazardous/contaminated materials encountered during construction.
Safety	Positive impacts to public safety are anticipated. The new culverts would allow for more efficient drainage of stormwater in Peabody, alleviating flooding in Peabody Square. The general public would no longer be vulnerable to the existing safety and health hazards and delayed public safety response resulting from flooding and isolation of the main fire and police station in Peabody.	All construction activities would be performed using qualified personnel and in accordance with the standards specified in OSHA regulations. Appropriate signage and barriers would be in place prior to construction activities to alert pedestrians and motorists of project activities.

5.0 CUMULATIVE IMPACTS

According to CEQ regulations, cumulative impacts represent the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). In accordance with NEPA and to the extent reasonable and practical, this EA considers the combined effect of the Proposed Action Alternative and other actions occurring or proposed in the vicinity of the proposed project site.

This EA concerns one of three distinct projects in the City’s overall flood mitigation plan for Peabody Square, which is referred to as “Project 1”. While the City’s ultimate objective is to have all three projects implemented, Project 1 has independent utility and could be completed without the other two projects. Furthermore, each project has a positive effect on the Peabody Square area by reducing flooding during the 50-year, 24-hour storm. Cumulatively, all three projects are anticipated to result in a net benefit to the environment by eliminating flooding to the Peabody Square area.

Only short-term impacts to surface water, air quality, noise, transportation, and biological resources are anticipated during construction of the proposed project. Improving flooding conditions may also have beneficial impacts on the development potential and investment trends in the area of Peabody Square, as businesses would be less likely to fear flooding of their properties during flood events. All short-term impacts require conditions to minimize and mitigate impacts to the proposed project site and surrounding areas.

6.0 PUBLIC INVOLVEMENT

FEMA is the lead Federal agency for conducting the NEPA compliance process for the Proposed Action. It is the goal of the lead agency to expedite the preparation and review of NEPA documents and to be responsive to the needs of the community and the purpose and need of the proposed action, while meeting the intent of NEPA and complying with all NEPA provisions.

The subapplicant will notify the public of the availability of the draft EA through publication of a public notice in a local newspaper. FEMA will conduct a 30-day public comment period commencing on the initial date of publication of the public notice.

7.0 AGENCY COORDINATION AND PERMITS

The following agencies and organizations were contacted by letter requesting project review during the preparation of this EA.

- Massachusetts Department of Environmental Protection, Northeast Region
- Massachusetts Division of Fisheries and Game
- Massachusetts Historical Commission
- Massachusetts Highway Department, District 4
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Region
- U.S. Army Corps of Engineers, New England District
- U.S. Department of Agriculture, Natural Resources Conservation Service, Westford Service Center
- U.S. Fish and Wildlife Service, New England Field Office

In accordance with applicable local, State, and Federal regulations, the subapplicant is responsible for acquiring any necessary permits prior to commencing construction at the proposed project site. The following permits and approvals are likely to be required for the work associated with the Proposed Action:

- Section 106 of the National Historic Preservation Act requires continued consultation with SHPO to fulfill stipulations in the Programmatic Agreement (PA). This includes all permits required by the State Archaeologist.
- Section 404 Programmatic General Permit (PGP) screened as a Category II Project from the U.S. Army Corps of Engineers
- Section 401 Water Quality Certification from Massachusetts Department of Environmental Protection
- Street Opening Permit from Peabody Department of Public Services
- NPDES Construction General Permit for Stormwater Discharge from Massachusetts Department of Environmental Protection
- NPDES Remediation General Permit (RGP) from the Massachusetts Department of Environmental Protection
- Agreement with Railroad for Work on Railroad Property

8.0 CONCLUSIONS

No long-term detrimental impacts to geology and soils, surface waters, floodplains, WOUS, including wetlands and coastal zones, transportation, environmental justice, air quality, noise, biological resources, including threatened and endangered species, or safety are anticipated with the Proposed Action Alternative.

Impacts from hazardous materials or waste are not anticipated; however, excavation activities may expose or otherwise affect subsurface hazardous materials (present in groundwater or soils) or waste such as urban fill, residual amounts of hazardous materials, including VOCs and/or contaminants related to historic leather tanning operations. Any hazardous/contaminated materials or waste discovered, generated, or used during construction would be disposed of and handled in accordance with applicable local, State, and Federal regulations. If hazardous/contaminated materials are discovered during the construction activities, the work will cease until the appropriate procedures and/or permits can be implemented. Consultation with the EPA and MassDEP, following a Phase II Environmental Site Assessment, will determine allowable thresholds for hazardous/contaminated materials encountered during construction.

Positive impacts to public health and safety are expected. There would be minor temporary impacts that are typically associated with construction projects of this nature (e.g., dust, noise, and traffic). Short-term impacts to soils, downstream surface water, transportation, air quality, and noise are anticipated. All short-term impacts require measures to minimize and mitigate impacts to the proposed project site and surrounding areas.

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